



## 6/8 SHIELDALLOY BRIEFING

### **Background:**

- The Shieldalloy facility consists of approximately 67.5 acres, located in Newfield, Gloucester County, NJ and Vineland, Cumberland County, NJ.
- The Shieldalloy Metallurgical Corporation (SMC) has been operating at the facility since 1955, processing ores and minerals to produce primary metals, specialty metals and ferroalloys.
- Metals that have been produced at the site include chromium, ferrocolumbium and ferrovanadium.

### **History of Contamination:**

- From 1963 and 1970, SMC discharged untreated wastewater from air pollution control equipment and from a chromium oxide production operation into an unlined lagoon.
- From 1965 and 1967, TCE was utilized in a degreasing unit to remove dirt and grease from metals handled at the facility. SMC has indicated that there were releases of TCE from this unit.
- Chromium contamination was detected in groundwater in early 1970, when a municipal well was installed adjacent to the site. This well was abandoned and NJDEPE directed SMC to conduct groundwater investigations.

### **Enforcement History:**

- As a result of the investigations conducted in the 1970's, a groundwater extraction and treatment system was installed in 1979. This system consisted of one extraction well, capable of pumping 80 gallons per minute.
- In September 1984 the site was included on the NPL, based primarily upon the presence of contaminated groundwater.
- NJDEPE and SMC entered into an ACO in September 1984 for the performance of a feasibility study to evaluate alternatives for the improved remediation of chromium contaminated groundwater and for continued operation of the existing groundwater treatment system.

- In 1986, due to the presence of TCE in groundwater, NJDEPE established a well restriction area downgradient of the site and used New Jersey Spill Fund money to connect affected residents to the municipal water system. Spill Fund money was also utilized at this time to install an air stripper on a municipal well located downgradient of the site which was also impacted by VOC contamination.
- In October 1988, NJDEPE entered into a second ACO to perform an IRM consisting of upgrading the existing groundwater remediation system to provide for extraction and treatment of 400 gallons per minute of groundwater, as called for in the FS conducted pursuant to the 1984 ACO. The 1988 ACO also required the performance of a site-wide RI/FS.
- Operation of the upgraded groundwater remediation system began in July 1989, utilizing ion exchange technology. The system could not operate to the design specifications, so an electrochemical treatment unit was put into operation in 1992. This system has been able to meet the design specifications.

## **RI Results**

- The RI was completed in April 1992. The results indicated that a site-related groundwater contaminant plume extends southwest of the facility in the upper and lower portions of the underlying aquifer. In addition, elevated levels of metals were detected in site soils.
- Chromium was the major inorganic contaminant detected in groundwater and was detected at concentrations in excess of 100,000 ppb. The MCL and GWQS for chromium is 100 ppb.
- TCE was the primary organic contaminant detected in groundwater and was detected at concentrations in excess of 800 ppb. The MCL and GWQS for TCE is 1 ppb.

## **NRC Issues:**

- Some of the ores which SMC processes contain naturally occurring radioactive materials. During the processing of these ores, these radioactive materials become concentrated in slag and baghouse dust. SMC is licensed by the NRC to process these ores and to store the resulting slag and baghouse dust at the site.
- The slag and baghouse dust are stored on the ground and uncovered in an NRC regulated area of the site.

- As part of the process of renewing SMC's NRC license, a plan for stabilizing or disposing of the low-level radioactive material (decommissioning the facility) must be prepared.
- SMC has indicated that it contemplated stabilizing the radioactive material and capping it on-site. NRC has since initiated an EIS to evaluate various alternatives for addressing the radioactive material, including SMC's proposed alternative, because the proposed alternative would not be in compliance with NRC regulations.
- Current NRC regulations require that the radioactive material be remediated to provide for unrestricted use of the site (i.e., off-site disposal of the material.)

#### **Bankruptcy Issues:**

- On September 2, 1993, SMC and its parent company, Metallurg Inc. filed for protection from creditors under Ch. 11 of the Bankruptcy Code.
- SMC has indicated that the decommissioning of its NJ facility and another facility in Cambridge, Ohio represents its largest unquantified liability. SMC has requested that NRC determine whether on-site stabilization of the radioactive material would be acceptable for decommissioning of the NJ facility. NRC is in the process of preparing an EIS for this purpose.
- SMC has indicated that if NRC requires off-site disposal of the radioactive material, it will file Ch. 7 and abandon the facility.
- If SMC files Ch. 7, the radioactive slag and baghouse dust will likely have to be handled under CERCLA. NRC currently has only \$750,000 put up as financial assurance by SMC, and no mechanism by which to fund the remediation.
- SMC has made an offer to NJDEPE and EPA to set up a trust of \$16.3 milhon to handle its RCRA and CERCLA habilities. This \$16.3 milhon currently exist in the form of three letters of credit which have been established to meet the financial assurance requirements of the 1988 State ACO (which covers the groundwater remediation and lagoon closure).

#### **Proposed Plan:**

- The Proposed Plan addresses the remediation of contaminated groundwater only. Contaminated soils, surface water and sediments are to be addressed under a separate operable unit(s).

- The preferred remedy consists of an upgrade of the existing groundwater extraction and treatment system. Approximately four additional extraction wells would be utilized. In addition, the existing electrochemical treatment unit would continue to be operated with a possible upgrade or use of an ion exchange treatment unit as secondary treatment if the existing system cannot achieve surface water discharge ARARs.

#### PP Major Points of Concern:

- Based upon the Proposed Plan, it appears that the NJDEPE's goal is to only capture the chromium plumes. While the existing system does utilize an air stripper for removal of VOCs, the TCE plumes, as delineated on the plume maps provided as part of the Plan, are somewhat larger than the chromium plumes. The preferred remedy should clearly be designed to recover both the TCE and chromium plumes, since both contaminants are attributable to the site.
- It should be noted that while the results of the risk assessment clearly indicated sufficient risk to justify implementing the groundwater remedial action, EPA had several problems with this document. Our major concern is that the document does not adequately quantify potential risks associated with groundwater consumption in the vicinity of the site. An exposure pathway for consumption of contaminated groundwater downgradient of the site is written off in both the current and future exposure scenarios, since this area falls within a well restriction zone. Results from wells side-gradient of the plume are utilized to characterize potential exposure to residences to the south (side-gradient) under current conditions. In this manner, the risks associated with the potential consumption of chromium and TCE contaminated groundwater are sidestepped.
- Surface water ARARs are not mentioned in the Proposed Plan. The current discharge numbers are grandfathered and are not considered protective. The NJDEPE Case Manager indicated that a NJDEPE surface water number of 5.8 ppb for chromium was originally developed, but that NJDEPE may now be trying to develop separate discharge numbers for the discharge of cooling water, storm water and treatment system effluent (currently, all three sources discharge to the same outfall and are monitored for compliance subsequent to mixing). Surface water ARARs should be included in the Proposed Plan.
- The Proposed Plan refers to the ion exchange system as the existing system. It must be clarified in the Plan that the electrochemical treatment unit is the current system in operation, and that the ion exchange system has not been utilized since 1992.